

Application No. 10/708,509
Technology Center 3767
Reply dated June 4, 2010
In Response to Office Action dated February 4, 2010

Amendments to the Specification:¹

Please replace paragraph under the heading “Cross Reference to Related Applications” with the following amended paragraph:

This application a continuation-in-part patent application of co-pending U.S. Patent Application Serial No.10/248,839 to Sparks, and claims the benefit of U.S. Provisional Application No. 60/530,961, ~~{Docket No. IFP-29}~~, filed December 10, 2003, and U.S. Provisional Application No. 60/469,134, filed May 12, 2003,
~~may 12, 2003.~~

Please replace paragraph [0016] with the following amended paragraph:

According to a preferred aspect of this invention, the sensing unit 12 comprises a housing 18 in which a sensing element 20 and

¹ All references to pages and paragraphs in Applicant's electronically-filed application are those inserted by the USPTO authoring software and appearing in U.S. Published Patent Application No. 2004/0171983, which is the publication of the present application.

electronic circuitry 22 are enclosed. As indicated in Figure 1, the sensing element 20 and circuitry 22 are located within cavities 21 and 23 defined within the housing 18 and closed by a cover 19 (shown in partial section). In the embodiment shown, the housing 18 is an integral portion of the syringe 14, and is therefore simultaneously molded with the barrel portion of the syringe 14. ~~syringe 146~~ However, the housing 18 could be separately formed and secured to the syringe 14 if so desired. For example, the housing 18 could be coupled to the syringe 14 (or another drug delivery apparatus) through a fluidic connection such as a Luer, threaded, compression, barbed, lock or other type of fitting.

Please replace paragraph [0020] with the following amended paragraph:

The embodiment of Figure 1 enables the otherwise conventional syringe 14 to controllably deliver a precise amount of fluid. The mass flow rate and density of the fluid discharged from the syringe 14 by actuating the syringe plunger is detected by the sensing element 20. Mass flow rate, density, and/or the volumetric

flow rate computed therefrom by the computer 26 can then be displayed by the display panel 28. Using a timing device associated with the circuitry 22 or computer 26 and triggered when the circuitry 22 measures flow through the tube 30, the volumetric flow rate can be used to calculate and display the actual amount of fluid dispensed through the sensing element 20, thereby giving a very accurate indication of the amount of fluid delivered through the needle 16. Notably, the same precision can be achieved if the fluid source is other than the syringe 14. ~~syringe 16.~~ For example, various manually-operated and machine-operated pumps could be used, such as a pressurized container and other relatively low cost pumps whose lower accuracy would otherwise exclude their use in the medical applications contemplated by the present invention.